

WHAT IS CLAIMED IS:

- 1 1. A catalytic converter, comprising:
2 a carrier;
3 a hydrocarbon (HC) trap layer trapping HC, said
4 HC trap layer being disposed on the carrier; and
5 at least two catalyst layers comprising an inner
6 layer disposed on the HC trap layer and an outer
7 layer disposed on the inner layer, said inner and
8 outer layers comprising catalyst noble metals,
9 an amount of said catalyst noble metal present in
10 the outer layer based on a unit volume of the carrier
11 being larger than an amount of the catalyst noble
12 metal present in the inner layer based on the unit
13 volume of the carrier.
- 1 2. A catalytic converter as claimed in claim 1,
2 wherein the catalyst noble metals comprise rhodium,
3 an amount of the rhodium being calculated as a value
4 obtained by multiplying the amount of the rhodium by
5 a predetermined number.
- 1 3. A catalytic converter as claimed in claim 2,
2 wherein the predetermined number is defined depending
3 on the kind of the catalyst noble metals other than
4 rhodium.
- 1 4. A catalytic converter as claimed in claim 2,
2 wherein the outer layer comprising the rhodium is an
3 outer-most layer.
- 1 5. A catalytic converter, comprising:
2 a hydrocarbon (HC) trap layer trapping HC; and
3 at least two catalyst layers comprising an inner
4 layer disposed on the HC trap layer and an outer

5 layer disposed on the inner layer, each of said inner
6 and outer layers comprising a catalyst noble metal
7 and a washcoat,
8 a mass ratio of said catalyst noble metal present
9 in the outer layer to the washcoat present therein
10 being higher than a mass ratio of the catalyst noble
11 metal present in the inner layer to the washcoat
12 present therein.

1 6. A catalytic converter as claimed in claim 5,
2 wherein the outer layer is an outer-most layer, a
3 mass ratio of the catalyst noble metal present in
4 said outer-most layer to the washcoat present therein
5 being five times or more a mass ratio of the catalyst
6 noble metal present in the inner layer below the
7 outer-most layer to the washcoat present therein.

1 7. A catalytic converter, comprising:
2 a carrier;
3 a hydrocarbon (HC) trap layer trapping HC, said
4 HC trap layer being disposed on the carrier; and
5 at least two catalyst layers comprising an inner
6 layer disposed on the HC trap layer and an outer
7 layer disposed on the inner layer, each of said inner
8 and outer layers comprising a catalyst noble metal
9 and a washcoat,
10 an amount of said washcoat present in the outer
11 layer based on a unit volume of the carrier being
12 smaller than an amount of the washcoat present in the
13 inner layer based on the unit volume of the carrier.

1 8. A catalytic converter as claimed in claim 1,
2 wherein the outer layer is an outer-most layer, said
3 outer-most layer comprising palladium, said inner

4 layer disposed below the outer-most layer comprising
5 a combination selected from palladium, platinum and
6 rhodium.

1 9. A catalytic converter as claimed in claim 2,
2 wherein the outer layer is an outer-most layer, said
3 outer-most layer comprising palladium, said inner
4 layer disposed below the outer-most layer comprising
5 a combination selected from palladium, platinum and
6 rhodium.

1 10. A catalytic converter as claimed in claim 5,
2 wherein the outer layer is an outer-most layer, said
3 outer-most layer comprising palladium, said inner
4 layer disposed below the outer-most layer comprising
5 a combination selected from palladium, platinum and
6 rhodium.

1 11. A catalytic converter as claimed in claim 6,
2 wherein the outer-most layer comprises palladium,
3 said inner layer disposed below the outer-most layer
4 comprising a combination selected from palladium,
5 platinum and rhodium.

1 12. A catalytic converter as claimed in claim 7,
2 wherein the outer layer is an outer-most layer, said
3 outer-most layer comprising palladium, said inner
4 layer disposed below the outer-most layer comprising
5 a combination selected from palladium, platinum and
6 rhodium.

1 13. A catalytic converter as claimed in claim 1,
2 wherein the inner and outer layers comprise promoters,
3 respectively, an amount of said promoter present in

4 the outer layer based on the unit volume of the
5 carrier being smaller than an amount of said promoter
6 present in the inner layer based on the unit volume
7 of the carrier.

1 14. A catalytic converter as claimed in claim 2,
2 wherein the inner and outer layers comprise promoters,
3 respectively, an amount of said promoter present in
4 the outer layer based on the unit volume of the
5 carrier being smaller than an amount of said promoter
6 present in the inner layer based on the unit volume
7 of the carrier.

1 15. A catalytic converter as claimed in claim 5,
2 further comprising a carrier supporting the HC trap
3 layer, said inner and outer layers comprising
4 promoters, respectively, an amount of said promoter
5 present in the outer layer based on the unit volume
6 of the carrier being smaller than an amount of said
7 promoter present in the inner layer based on the unit
8 volume of the carrier.

1 16. A catalytic converter as claimed in claim 6,
2 further comprising a carrier supporting the HC trap
3 layer, said inner and outer layers comprising
4 promoters, respectively, an amount of said promoter
5 present in the outer layer based on the unit volume
6 of the carrier being smaller than an amount of said
7 promoter present in the inner layer based on the unit
8 volume of the carrier.

1 17. A catalytic converter as claimed in claim 7,
2 wherein said inner and outer layers comprising
3 promoters, respectively, an amount of said promoter

4 present in the outer layer based on the unit volume
5 of the carrier being smaller than an amount of said
6 promoter present in the inner layer based on the unit
7 volume of the carrier.

1 18. A catalytic converter as claimed in claim 8,
2 wherein said inner and outer layers comprising
3 promoters, respectively, an amount of said promoter
4 present in the outer layer based on the unit volume
5 of the carrier being smaller than an amount of said
6 promoter present in the inner layer based on the unit
7 volume of the carrier.

1 19. A catalytic converter as claimed in claim 1,
2 further comprising a base coat layer disposed between
3 the carrier and the HC trap layer, said base coat
4 layer comprising one of alumina and silica as a main
5 component.

1 20. A catalytic converter as claimed in claim 2,
2 further comprising a base coat layer disposed between
3 the carrier and the HC trap layer, said base coat
4 layer comprising one of alumina and silica as a main
5 component.

1 21. A catalytic converter as claimed in claim 5,
2 further comprising a base coat layer disposed between
3 the carrier and the HC trap layer, said base coat
4 layer comprising one of alumina and silica as a main
5 component.

1 22. A catalytic converter as claimed in claim 6,
2 further comprising a base coat layer disposed between
3 the carrier and the HC trap layer, said base coat

4 layer comprising one of alumina and silica as a main
5 component.

1 23. A catalytic converter as claimed in claim 7,
2 further comprising a base coat layer disposed between
3 the carrier and the HC trap layer, said base coat
4 layer comprising one of alumina and silica as a main
5 component.

1 24. A catalytic converter as claimed in claim 8,
2 further comprising a base coat layer disposed between
3 the carrier and the HC trap layer, said base coat
4 layer comprising one of alumina and silica as a main
5 component.

1 25. A catalytic converter, comprising:
2 a carrier;
3 a hydrocarbon (HC) trap layer trapping HC, said
4 HC trap layer being disposed on the carrier; and
5 a multilayered catalyst system disposed on the
6 HC trap layer, said multilayered catalyst system
7 comprising a first catalyst layer disposed on the HC
8 trap layer and a second catalyst layer disposed on
9 the first catalyst layer, said first and second
10 catalyst layers comprising catalyst noble metals,
11 respectively, said catalyst noble metal present in
12 the second catalyst layer being controlled to be
13 active earlier than the catalyst noble metal present
14 in the first catalyst layer.

1 26. A catalytic converter as claimed in claim 25,
2 wherein an amount of the catalyst noble metal present
3 in the second catalyst layer based on a unit volume
4 of the carrier is larger than an amount of the

5 catalyst noble metal present in the first catalyst
6 layer based on the unit volume of the carrier.

1 27. A catalytic converter as claimed in claim 25,
2 wherein the first and second catalyst layers comprise
3 washcoats, respectively, a mass ratio of said
4 catalyst noble metal present in the second catalyst
5 layer to the washcoat present therein being higher
6 than a mass ratio of the catalyst noble metal present
7 in the first catalyst layer to the washcoat present
8 therein.

1 28. A catalytic converter as claimed in claim 26,
2 wherein the catalyst noble metal present in the
3 second catalyst layer comprises rhodium, an amount of
4 said rhodium being calculated as a value obtained by
5 multiplying the amount of the rhodium by a
6 predetermined number.

1 29. A catalytic converter as claimed in claim 28,
2 wherein the predetermined number is defined depending
3 on the kind of the catalyst noble metals other than
4 rhodium.

1 30. A catalytic converter as claimed in claim 25,
2 wherein the first and second catalyst layers comprise
3 washcoats, respectively, an amount of said washcoat
4 present in the second catalyst layer based on a unit
5 volume of the carrier being smaller than an amount of
6 the washcoat present in the first catalyst layer
7 based on the unit volume of the carrier.

1 31. A catalytic converter as claimed in claim 25,
2 wherein the first and second catalyst layers comprise

1 32. A catalytic converter as claimed in claim 25,
2 further comprising a base coat layer disposed between
3 the carrier and the HC trap layer, said base coat
4 layer comprising one of alumina and silica as a main
5 component.